

# TSD Software Requirements

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Requirements Described: Find Flight Function  
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Target Release: 7.5

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## Revision History

| Revision    | Date         | Authors<br>Initials | Description of the Change   |
|-------------|--------------|---------------------|---|
| Version 1.2 | 1998         | RO                  | Initial Version   |
| Version 1.3 | May 22, 2002 | MT                  | Modified for Release 7.5 to include adaptation functions and to change the GUI. |

## 1.0 Overview

The purpose of the Find Flight function is twofold. First, if the user wants to locate a particular flight, then this function will allow this flight to be displayed, and it will move the pointer to this flight to indicate its location. Second, this function gives the user to a way to display sets of flights, where the methods used to display a set (e.g., wildcarding) differ somewhat from the methods allowed in the Select Flights dialog box.

### 1.1 Summary of Changes for Release 7.5

The following are a summary of the changes that are planned for Release 7.5:

1. The standard adaptation functions will be added to the Find Flight function. The TSD shall save and recall the List of Found Flights in adaptation files using the standard adaptation functions.
2. The Find Flights dialog box will be modified to add the File menu for the adaptation functions.
3. The Find Flight function shall now find all instances of flights whose ACIDs match the ACIDs specified in the List of Found Flights. (In previous releases, the design of the Find Flight function assumed that there would never be multiple active flights with the same ACID. Therefore it was designed to find only the first flight that matched the specified ACID.)

## **2.0 Basic Functionality**

### **2.1 The List of Found Flights**

The flights that the user displays with this function are referred to collectively as “the list of found flights.” (The term ‘list’ is used generically; this is not meant to imply that a list is the data structure that is used to store these items. The developer should decide on the best data structure.) The user uses the Find Flight dialog box (see below) to add or remove flights from this list. The TSD displays the icon and data block for every flight that is on the list of found flights that is on the geographic area shown. In some cases, discussed below, the TSD shall give the user the option of re-centering the TSD so that the desired flight is at the center

Three aspects of a flight that need to be specified are the icon to be drawn, the data block to be drawn, and the color in which the icon and label are drawn.

### **2.2 Icon**

The TSD shall draw a found flight using the automatic icon.

### **2.3 Data Block**

When a flight is first found, the TSD shall show its data block. The TSD shall draw the data block as specified by the Customize Flights dialog box options for org/dest, route, or beacon code. The user can later use the browse function to turn off or alter the data block.

The Customize Flights dialog box can *not* be used to control whether the data block of a found flight is drawn. The data block of a found flight is always drawn unless the user has turned it off with the browse function. As for the data block, the Customize Flights dialog box can only be used to determine whether the route and org/dest are shown in the data block. That is, there are two ways to determine what is shown in the data block; both the Customize Flights and the browse function can be used.

### **2.4 Color**

When the TSD displays a found flight, it shall draw the icon and data block in the color that is specified in the Find Flight dialog box unless the found flight is a member of a shown flight set as defined in Select Flights. In the latter case, the TSD shall draw the icon and data block in the color that is defined for the flight set in Select Flights. (A shown flight set is defined as a flight set that is being displayed currently on the TSD. The flight set ‘show’ check box is selected and flights are being shown.)

## **3.0 User Interface**

*Menu Command:* Under the **F**lights menu item, **F**ind Flight... shall be an option. If the user chooses this command, the TSD shall put on the screen the Find Flight Dialog box shown in Figure 1. Section 4 discusses the functionality of this box.

*Quick Key:* If the user presses the '@' key, the TSD shall display the Find Flight dialog box shown in Figure 1. Section 4 discusses the functionality of this box.

*Command Line:* This function is not accessible through the command line.

## 4.0 Find Flight Dialog Box Functionality

The Find Flight dialog box is shown in Figure 1. TSD shall put this dialog box on the screen if the user selects the **F**lights/**F**ind Flight menu command or if the user presses the '@' quick key. When this box is placed on the screen, the Find Flight(s) text field shall have focus.

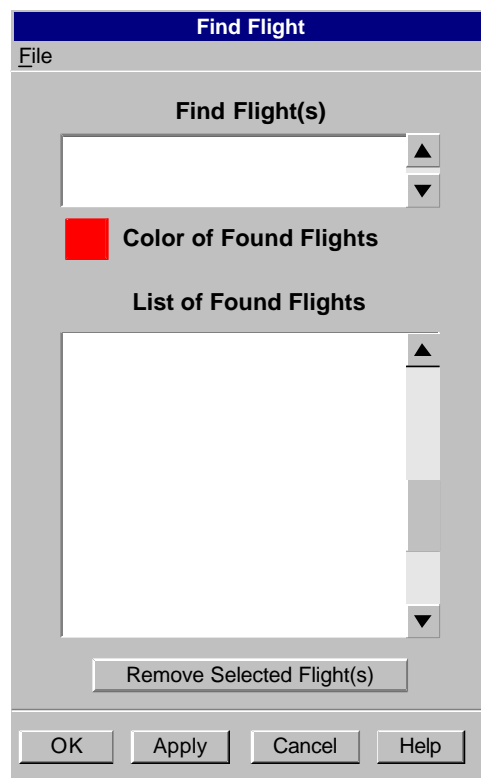


Figure 1 Find Flights Dialog Box

This dialog box shall have six main features.

- List of Found Flights
- Find Flight(s) text field
- Color button.
- Remove button

- Standard action buttons
- File menu with the standard adaptation menu items of Recall, Save, and Delete.

The general idea is that the user types one or more entries into the Find Flight text field and then clicks OK or Apply; the TSD then shall display the icons and data blocks for these flights (if they are on the areas being displayed). If the entry refers to a single flight and if that flight is not on the area displayed, the TSD shall give the user the option of re-centering the display so that this flight is at the center. To remove a found flight, the user highlights it, clicks the remove button, then clicks OK or Apply. Each of these five features of the dialog box are described below.

## 4.1 List of Found Flights

This area shows the items that are currently on the list of found flights. The contents of this list determine which flight icons and data blocks shall be displayed on the screen in the find flight color when the user clicks the OK or Apply button.

The TSD shall not restrict the number of found flights that are allowed.

The TSD shall allow the user to select one or more items in the list using the standard Motif methods (click, shift click, and ctrl click) for selecting items. When an item in the list is selected, the TSD shall highlight the item. In short, standard Motif methods shall be used to select items in the list.

When this dialog box is opened, all items shall be deselected. This shall be the case even if some were selected when it was last closed.

Items in this box shall be displayed in alphabetical order.

## 4.2 Find Flight Text Field

The TSD shall allow the user to enter the following into this text field.

- The identifiers of individual flights that should be added to the list of found flights, or
- Wildcard expressions that denote sets of flights to be added to the list of found flights. In a wildcard expression, “?” stands for any single character, and “\*” stands for any string of characters.

The TSD shall allow the user to make any number of entries in this field, as long as the number of characters does not exceed 256. **This field shall be sized to allow 2 lines of 32 characters each without scroll bars. The TSD shall display scroll bars if more lines are needed.** One or more spaces shall separate each entry.

When this dialog box is opened, the text field shall be blank.

## 4.3 Color Button

The color button shows the color that all of the found flights will be drawn in when OK or Apply is clicked. If the user clicks the color button, the TSD shall display the standard color palette. If the user selects a color from this palette, then the TSD shall display this color in the color button.

#### 4.4 Button for Removing Selected Flights From the List

This area shall contain a single action button, “Remove Selected Flight(s).” When the user clicks this button, the TSD shall take the following actions.

- If one or more flights are selected, the TSD shall remove these flights from the list of found flights. Note that these flights are removed from the list, not from the screen; they are only removed from the screen when the user clicks OK or Apply. When this button is clicked, selected flights are immediately removed from the list; no confirmation box is displayed.
- If no flights are selected, the TSD shall take no action.

Note that if, after removing flights from the list, the user clicks Cancel without clicking OK or Apply, then the TSD shall reinstate these flights in the list. This means that these flights shall still be shown on the screen, and they shall appear in the list the next time that the Find Flight dialog box is opened.

#### 4.4 Standard Action Buttons

**OK.** Suppose the user clicks the OK button. There are three cases to consider. The first case is that there is no entry in the Find Flight field. In this case, the TSD shall take the following action.

- The TSD shall re-draw the screen with all the flights that are on the list of found flights displayed with their data blocks. The TSD shall not give the user the option of re-centering the screen.
- The TSD shall remove the Find Flight dialog box from the screen.

The second case is that there is exactly one entry in the Find Flight field and this entry does not contain a wildcard character and only one flight is found for the entry. In this case, the TSD shall take the following action. (Note that this is the only case in which the user might be given the option of re-centering the TSD.)

- The TSD shall add this entry to the list of found flights. The TSD shall not do any error-checking.
- The drawing that the TSD shall perform depends on which of three cases holds.
  - If this flight is active and is in the geographic area that is shown on screen, then no further action is needed. In particular, TSD shall not give the user the option of re-centering the screen.
  - If the flight is active but is not in the geographic area that is shown on screen, the TSD shall put up the query message: “Would you like to re-center the display on this flight?” This query box shall have two buttons, Yes and No. Focus shall be on the Yes button when this message is displayed. If the user answers No, then the TSD shall not change the move/zoom parameters. If the user answers Yes,

then the TSD shall change the move parameter so that the TSD display is re-centered on this flight; the zoom parameter shall not be changed.

- If the flight is not active, the TSD shall put this flight on the list of found flights but take no other action. Later, if this flight comes into the geographic area that is displayed, the TSD shall display it.
- The TSD shall draw the icons and data blocks for all the flights that are on the list of found flights and that are in the geographic area shown on the TSD.
- If the flight in the Find Flight field is on the screen, the TSD shall place the pointer on the icon of this flight.
- The TSD shall remove the Find Flight dialog box from the screen.

The third case is when there is more than one entry in the Find Flight field, or there is one entry that contains a wildcard character, or the TSD finds more than one flight. In this case, the TSD shall take the following action.

- If there are any entries without wildcard characters, these are added to the list of found flights. The TSD does not do any error-checking on this entry.
- If there are any entries that contain a wildcard character, then for each such entry there are two cases that might occur.
  - The first case is that at least one active flight can be found that matches the entry. Any currently active flights that match that entry are added to the list of found flights. Example: Suppose that the user enters UAL1\*. What is entered on the list of found flights are entries such as UAL123 and UAL145; UAL1\* is not entered in the list. Also, the list of found flights has no memory. That is, after a user enters UAL1\*, suppose that UAL167 takes off and becomes active. This is not added to the list of found flights. Similarly, if flight UAL123 is on the list and lands, the TSD shall not take it off the list. A flight shall only be removed from the list when the user explicitly removes it by using the Remove button.
  - The second case is that no active flights match the entry. In this case the TSD shall put up an error message: "No flights matching XXXXXX can be found." This box shall only have an OK button. After the user clicks OK, the TSD highlights this entry in the Find Flight field.
- If any of this would cause the list of found flights to exceed 256, then the error message defined above is posted.
- The TSD shall re-draw the screen with all the flights that are on the list of found flights displayed with their data blocks. The TSD shall not give the user the option of re-centering the screen.
- The TSD shall remove the Find Flight dialog box from the screen.

There is one fine point concerning the \* wild card character. Suppose a user enters UAL\*1. The user might think that this will find all UAL flights whose call sign ends with a 1. This is a very common error; what this will find is all UAL flights. We want to guard the user from this error. Therefore, if the user enters any character after a \* and clicks OK, the TSD shall put up the error message: "A character may not be placed after an \*." OK is the only button on this error message box. After the user clicks OK, focus is placed on the Find Flight text field, this entry is highlighted, and the cursor is placed directly after it.

**Apply.** If the user clicks the Apply button, the TSD shall take the same action as if the OK button were clicked, but with two exceptions.

- The List of Found Flights shall be updated on the screen.
- The Find Flight dialog box shall not be removed from the screen.

It might be that the user finds a single flight and that the TSD needs to place the pointer on this flight; it might be that this flight is underneath the Find Flight dialog box. In this case, the TSD shall place the pointer on top of the flight, which means that the pointer is on top of the dialog box.

**Cancel.** If the user clicks the Cancel button, then the TSD shall remove the Find Flight dialog box from the screen and do nothing else; any entries in the Find Flight text field shall be discarded. Any changes to the list of found flights that have been made (and not accepted by clicking Apply) shall be discarded.

**Help.** When the Help button is clicked, the TSD shall display the Help file appropriate for the Find Flight dialog box.

## 4.5 Keyboard Control

As the <Tab> key is repeatedly pressed, focus shall move among the fields and buttons in the following order.

- Find Flight text field.
- Color button.
- List of found flights.
- Remove button.
- OK.
- Apply.
- Cancel.
- Help. (And then back to Find Flight text field.)

If the List of Found Flights area has focus, the keyboard focus shall move among the found items with the up and down arrow key. Pressing the space bar toggles the selection status of an item. If the focus is on a button, pressing the space bar shall be equivalent to clicking that button.

If the user presses <return> or <enter> while the find flight dialog box has focus, this shall be equivalent to pressing the OK, and the OK button shall have a faint box drawn around it to signify this.

## 4.6 File Menu

The Find Flights dialog box shall provide a File menu with the following menu options:

Recall  
Save  
Delete

The purpose of these menu options is to allow the user to save and recall the list of found flights that they have defined.

These functions shall be the standard adaptation functions similar to the adaptation functions that are available under the Display>Adapt menu option with the exception of the Recall option that is described in Section 4.6.1.

#### 4.6.1 Recall Flight List Dialog Box

When the user selects the Recall option, the TSD shall display the file selection dialog box shown in Figure 4.2. This dialog box shall allow the user to select the file name for the flight list that will be recalled.

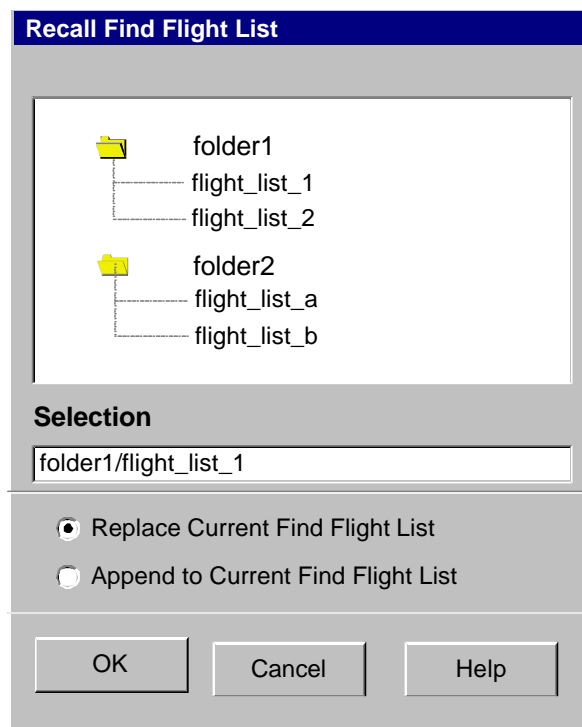


Figure 4.2 Recall Flight List Dialog Box

This dialog box shall list the files stored in the Find Flights adaptation directory (*/etms/tsd/adapt/flights\_find*). The TSD shall show subdirectories as folder icons. The TSD shall not allow the user to view higher-level directories. The display of the list shall be based upon the XRT Outliner widget that shall allow the user to selectively view the contents of subdirectories by double clicking on the folder icon to open or close the folder. When an item in the list is selected, the "Selection" text entry field shall display the file name (along with subdirectory names when appropriate). The Selection field shall accept user input from the keyboard. If the text entered starts with a "/" character, the TSD shall assume that the text is a full path name. If the text entered does not start with a "/" character, the TSD shall assume that the file name (which may include subdirectories) is relative to the Find Flights adaptation directory.

If the "Replace" radio button is selected when the OK button is clicked, the TSD shall replace the current flight list with the flights defined in the specified file. If the "Append" radio button is selected when the OK button is clicked, the TSD shall append the flights defined in the file to the



flight list at the bottom of the list. The Replace radio button shall be the default when this dialog box is opened for the first time.

If the **Cancel** button is clicked, the TSD shall close the dialog box without changing the flight list.

The TSD shall display an error message if the file name specified cannot be found or cannot be accessed when the **OK** button is clicked. In this case, this dialog box shall not be closed so that the file name can be corrected before retrying to find the file.

When the **OK** button, the TSD shall validate that the file specified is Find Flights adaptation file. If the TSD detects that the file is not valid or the TSD has problems reading or processing the file, the TSD shall ignore the file and display an error message.

## 5.0 Interactions with Other Parts of the TSD

**Quick keys.** The following quick keys shall have no effect on found flights.

- F: As the user presses this quick key and turns on and off the display of flights defined by the Select Flights dialog box, the found flights are unaffected.
- |: As the user presses this quick key and turns flight data blocks on and off, the found flights are unaffected.
- \: This quick key can be used to delete the icon of a found flight. The next time that OK or Apply is clicked in the Find Flight dialog box, however, this flight will be redrawn, as long as it is still on the list of found flights. Deleted flight icons shall also be redrawn when the “F” quick key is toggled off and on.

The following quick keys shall have the same effect on found flights as they do on flight sets defined by the Select Flights dialog box.

- +: Toggles origin/destination in data blocks.
- &: Toggles route in data blocks.
- - (hyphen): Toggles the drawn route.
- \_(underscore): Toggles the history.
- \*: Toggles last TZ.
- /: Toggles lead lines.

**Flight customization.** The toggle data block command in the Customize Flight dialog box shall not affect found flights. All other commands given from the Customize Flight dialog box shall affect the found flights.

**Browse.** The TSD shall support all of the flight browse functions for found flights.

## 6.0 Issues

1. None at this time.